

REMARKS

Claim 26 has been amended. Claims 2-27 are present in the application. In view of the foregoing amendment, and the remarks that follow, Applicants respectfully request reconsideration.

Objection to Claim 26

The Office Action objected to dependent Claim 26, indicating that the recitation of "ozone (O₂)" should be changed to "ozone (O₃)". Applicants agree, and the foregoing amendments implement this correction. This amendment merely corrects a typographical error, and is not intended to cause any change in the scope of Claim 26.

Comment Regarding Hazelton U.S. Patent Application Publication No. 2006/0023185

Previous Office Actions have rejected claims based on Hazelton U.S. Patent Application Publication No. 2006/0023185. The present Office Action also contains claim rejections based on Hazelton. In previously-filed Responses, Applicants have repeatedly pointed out that the Examiner has failed to carry the burden of establishing that Hazelton is actually prior art with respect to the present application. In reply, the Examiner asserts on page 12 of the present Office Action that:

. . . because all the materials used for the rejection are found in provisional application 60/462,556 and 60/482,913; and the PCT application PCT/US2004/010309 is (1) designated to the United States, (2) published by the World Intellectual Property Organization, and (3) publication occurred in the English language, Hazelton et al is a prior art.

However, this conclusory assertion falls well short of what is legally required, for the following reasons.

First, in a prior Office Action mailed on November 15, 2007, the Examiner cited and provided Applicants with a photocopy of provisional application 60/462,556. However, despite repeated previous objections by Applicants, the Examiner has never cited provisional application 60/482,913, and has never provided Applicants with a copy of provisional application 60/482,913. (Since the '913 provisional application is not a U.S. patent or a published U.S. application, the Examiner is required to provide Applicants with a copy of this provisional application in order to rely on it, and has failed to do so). Accordingly, the '913 provisional application has never been properly made of record here, and the Examiner cannot properly rely on it.

Second, the fact that Hazleton claims the priority of the PCT application and the priority of the two provisional applications does not mean that Hazelton is automatically entitled to the benefit of either the PCT filing date or the benefit of either of the two provisional filing dates. The Examiner has the burden of establishing that Hazelton qualifies as prior art and, as part of that burden, the Examiner must show (1) that Hazleton claims the benefit of priority dates, and also (2) that Hazelton is legally entitled to enjoy the benefit of those priority dates. Here, the Examiner has shown that Hazleton claims the benefit of various priority dates, but has failed to carry the burden of establishing that Hazelton is legally entitled to enjoy the benefit of any of those priority dates. In this regard, the attention of the Examiner is respectfully directed to MPEP §2136.03(III), which provides that:

The 35 U.S.C. 102(e) critical reference date of a U.S. patent or U.S. application publications and certain international application publications entitled to the benefit of the filing date of a provisional application under 35 U.S.C. 119(e) is the filing date of the provisional application . . . if the provisional application(s)

properly supports the subject matter relied upon to make the rejection in compliance with 35 U.S.C. 112, first paragraph. (Bold emphasis in original).

In other words, in the present application, Hazelton is only entitled to the benefit of the filing date of either provisional application "if the provisional application(s) properly supports the subject matter relied upon to make the rejection in compliance with **35 U.S.C. 112**, first paragraph". The Examiner has the obligation of proving that one of Hazelton's provisional applications provides §112 first paragraph support for the subject matter relied upon to make the rejections, and the Examiner has failed to do so here. The statement on page 12 of the Office Action that "all the materials used for the rejection are found in provisional application 60/462,556 and 60/482,913" is merely a conclusory assertion, and falls well short of the burden of proof that the Examiner is required to meet in order to make proper rejections.

Third, and in a similar manner, the Examiner has the obligation of proving that Hazelton's PCT application provides §112 first paragraph support for the subject matter relied upon to make the rejections, and the Examiner has failed to do so here. The statement on page 12 of the Office Action that "the PCT application PCT/US2004/010309 is (1) designated to the United States, (2) published by the World Intellectual Property Organization, and (3) publication occurred in the English language" is correct, but is only a portion of what the Examiner must prove. The present Office Action provides nothing tending to prove that Hazelton's PCT application provides §112 first paragraph support for the subject matter relied upon to make claim rejections. Accordingly, the Office Action falls well short of the burden of proof that the Examiner is required to meet in order to make proper rejections.

In more detail, the Hazelton '185 publication is a publication of a U.S. patent application that was filed on September 29, 2005, but this filing date is after the March 16, 2004 filing date of the present application. The Hazelton '185 publication claims the priority of a PCT application filed on April 2, 2004, but the PCT filing date is also after the March 16, 2004 filing

date of the present application. Through the PCT application, Hazelton claims the priority of two U.S. provisional applications but, as discussed above, only one of those two provisional applications has been cited and made of record in the present application (U.S. Provisional Application No. 60/462,556 filed April 11, 2003). Thus, the Examiner is currently relying only on the '556 provisional application. The Examiner is asserting that Hazelton is prior art under §102(e). But in order to show that Hazelton is prior art under §102(e), the Examiner will need to show that various requirements have been met.

More specifically, if the Examiner intends to rely on the '913 provisional application, the Examiner will need to formally cite this provisional application, and provide Applicants with a photocopy of it. For now, it is assumed that the Examiner is relying only on the '556 provisional application, and not the '913 provisional application. Further, as to each teaching for which Hazelton is cited, the Examiner will need to show (1) where that teaching is disclosed in Hazelton's '556 provisional application, (2) where that teaching is disclosed in Hazelton's PCT application, and (3) where that teaching is disclosed in Hazelton's U.S. Patent Application Publication No. 2006/0023185. Otherwise, the teaching does not qualify as prior art with respect to the present application. In the present Office Action, the Examiner fails to do this.

Summarizing, the Examiner has the burden of proving several points that are all necessary to establish that teachings in Hazelton are "prior art" with respect to the present application. But to date, the Examiner has failed to make all the necessary showings. Absent those showings, the Examiner has not carried the burden of proving that Hazelton's teachings qualify as prior art with respect to the present application. Accordingly, the §102 and §103 rejections based on Hazelton are all defective, and fail to properly establish prima facie cases of either anticipation or obviousness. As a result, the claim rejections based on Hazelton are all defective, and it is respectfully submitted that they must be withdrawn.

Independent Claim 15

Independent Claim 15 stands rejected under 35 U.S.C. §102 as anticipated by Hazelton U.S. Patent Application Publication No. 2006/0023185. This ground of rejection is respectfully traversed, for the following reasons.

HAZELTON HAS NOT BEEN SHOWN TO BE PRIOR ART

As discussed in more detail above, the Examiner has the burden of proving several points that are all necessary to properly establish that teachings in Hazelton constitute "prior art" with respect to the present application. But to date, the Examiner has failed to prove almost all of the necessary points. Absent proof of each of these points, the Examiner has failed to carry the burden of proving that any teachings from Hazelton qualify as prior art with respect to the present application. Accordingly, the §102 rejection of Claim 15 based on Hazelton is defective, and fails to properly establish a prima facie case of anticipation. As a result, it is respectfully submitted that the rejection of Claim 15 based on Hazelton is incomplete and improper, and must be withdrawn.

HAZELTON DOES NOT DISCLOSE WHAT THE OFFICE ACTION SAYS IT DOES

Citing and quoting relevant case law, the PTO explains in MPEP §2131 that, under 35 U.S.C. §102:

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). . . . "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The elements must be arranged as required by the claim *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

In other words, to anticipate a claim under §102, a reference (1) must disclose each and every element recited in the claim, and (2) must also disclose these elements arranged in the manner recited in the claim. Applicants' Claim 15 expressly recites:

means for performing a light exposing operation on the wafer using an objective lens immersed in the first fluid; and
means for providing a surfactant to the first fluid to form a second fluid to reduce an adherence of floating defects to the wafer or the objective lens.

On page 3 of the present Office Action, the Examiner asserts that Hazelton discloses in Figure 10:

. . . the pipe on top of a valve #25 . . . which is fully capable of providing a surfactant to the immersion liquid to reduce an adherence of floating defect to the wafer or the optical element.

However, Claim 15 is different from Figure 10 of Hazelton. More specifically, Claim 15 recites structure for adding a surfactant to a fluid used for immersion lithography. In contrast, Figure 10 of Hazelton discloses an immersion lithography system, but Hazelton uses separate and distinct fluids for (1) immersion lithography and (2) cleaning. For example, Hazelton's abstract discusses both an "immersion liquid" and a "cleaning liquid", explaining that:

. . . a fluid-supplying device serves to supply an immersion liquid into this gap such that the supplied immersion liquid contacts both the optical element and the workpiece during an immersion lithography process. A cleaning device is incorporated for removing absorbed liquid from the optical element during a cleanup process. The cleaning device may make use of a cleaning liquid having affinity to the absorbed liquid The cleaning liquid may be supplied through the same fluid-applying device provided with a switching device such as a valve.

Moreover, in regard to Figure 10, Hazelton explains in paragraph [044] that:

[0044] FIG. 10 shows a different approach to the problem of cleaning the last-stage optical element 4 by applying a cleaning liquid on its bottom surface by using the same source nozzles 21 used for supplying the immersion liquid 7. For this purpose, a switch valve 25 is inserted between the supply nozzle 21 and the liquid unit 5 such that the immersion liquid 7 and the cleaning liquid can be supplied selectively through the supply nozzle 21.

In other words, Hazelton teaches that, using the valve 25 of Figure 10, it is possible to "selectively" supply either (1) immersion liquid or (2) cleaning liquid through the supply nozzle 21, but not both at the same time. Contrary to the assertions in the Office Action, Hazelton does not teach that the valve 25 is used to mix the cleaning liquid with the immersion liquid. The Examiner seems to recognize this in the Office Action, for example by asserting that the valve 25 is "capable of" providing a surfactant to the immersion liquid. This is essentially an assertion that it would be obvious to modify Hazelton to do what Claim 15 recites. However, obvious

modifications are irrelevant in a rejection under §102. Moreover, the cleaning liquid disclosed in Hazelton is not the same as the surfactant-containing fluid recited in Claim 15. Claim 15 recites that the surfactant reduces an adherence of floating defects to the wafer or the objective lens. In contrast, Hazelton teaches a cleaning fluid that has an affinity for the immersion fluid, and can extract the immersion fluid from a lens. There is no teaching in Hazelton that the cleaning liquid can reduce the adherence of floating defects to a wafer or a lens. Thus, Hazelton's cleaning liquid is different in composition and function from the surfactant-containing fluid recited in Claim 15. Moreover, since Hazelton's cleaning liquid has an affinity for the immersion liquid, it makes no sense to suggest that Hazelton's cleaning liquid could be mixed with the immersion liquid.

Under §102, Hazelton must teach exactly what is recited in Claim 15, and Hazelton fails to do so. In fact, in the last line on page 4 of the Office Action, the Examiner explicitly admits that "Hazelton et al remain silent about providing first fluid containing surfactant". The Examiner thus explicitly admits that Hazelton does not disclose each and every element recited in Claim 15. Hazelton therefore does not meet the requirements for anticipation discussed above and in MPEP §2131, and does not anticipate Claim 15 under §102. Claim 15 is therefore believed to be allowable over Hazelton, and notice to that effect is respectfully requested.

In view of each of the different reasons discussed above, it is respectfully submitted that independent Claim 15 of the present application is not anticipated under §102 by Hazelton. Accordingly, Claim 15 is believed to be allowable, and notice to that effect is respectfully requested.

Independent Claims 6, 9 and 20

Independent Claim 6 stands rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of Hazelton with Zhang U.S. Patent Application Publication No. 2005/0161644 and Amblard U.S. Patent No. 7,056,646. Independent Claim 9 stands rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of Hazelton with Lyons

U.S. Patent No. 7,125,652 and the Amblard patent. Independent Claim 20 stands rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of Hazelton with Amblard. These grounds of rejection are all respectfully traversed, for the following reasons.

HAZELTON HAS NOT BEEN SHOWN TO BE PRIOR ART

As discussed in more detail above, the Examiner has the burden of proving several points that are all necessary to properly establish that teachings in Hazelton constitute "prior art" with respect to the present application. But to date, the Examiner has failed to prove almost all of the necessary points. Absent proof of each of these points, the Examiner has failed to carry the burden of proving that any teachings from Hazelton qualify as prior art with respect to the present application. Accordingly, the §103 rejections of Claims 6, 9 and 20 based in part on Hazelton are all defective, and each fail to properly establish a prima facie case of obviousness. As a result, it is respectfully submitted that the rejections of Claims 6, 9 and 20 based on Hazelton are each incomplete and improper, and must be withdrawn.

PTO CANNOT ESTABLISH OBVIOUSNESS WITH ART THAT TEACHES AWAY

In evaluating obviousness under §103, it is not proper to selectively consider only part of a reference, while ignoring other parts that teach away from the invention. In this regard, the provisions of MPEP §2141.02 specify that:

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. (Emphasis in original).

In the present application, Claim 6 includes a recitation of:

performing a light exposing operation on the wafer using
an objective lens immersed in a first fluid containing surfactant;
and

cleaning the objective lens after the light exposing
operation using a second fluid having a higher surfactant
concentration than the first fluid.

Claim 9 includes a recitation of:

performing a light exposing operation on the wafer using
an objective lens immersed in a first fluid that does not contain
surfactant; and

cleaning the objective lens using a second fluid comprising
a surfactant-spiked water immersion fluid.

Claim 20 includes a recitation of:

performing a light exposing operation on the wafer using
an objective lens immersed in a first fluid; and

cleaning the objective lens using a second fluid containing
surfactant.

As to the “cleaning” recited in each of Claims 6, 9 and 20, the Office Action admits that Hazelton does not disclose the use a liquid containing a surfactant, even when considered with either Zhang or Lyons. Therefore, in each rejection, the Examiner turns to Amblard, and in particular relies on a surfactant-containing liquid disclosed in Amblard. However, Amblard teaches that this liquid, which includes a base developer, is specifically intended for use as an

immersion liquid during immersion lithography. Amblard repeatedly points out that, since the immersion liquid contains a base developer, the need for a separate development step after patterning is avoided, so that the immersion lithography is more efficient. (For example, this is discussed in lines 58-67 in column 1, lines 8-10 and 46-58 in column 2, lines 58-60 of column 7, and lines 47-50 of column 8). In the present Office Action, the Examiner asserts that Amblard's liquid (which contains a developer) could be used as a cleaning fluid, and in particular could be contacted with the immersion lithography arrangement after the immersion fluid is removed. However, Amblard explicitly teaches away from this, by repeatedly stating that "A developer is not contacted with the immersion lithography arrangement after the immersion lithography fluid is removed" (for example lines 58-60 of column 7, and lines 47-50 of column 8).

Since it is well recognized that teaching away from a claimed invention is a per se demonstration of lack of prima facie obviousness, it is respectfully submitted that Hazelton and Amblard do not factually support a prima facie case of obviousness under §103 with respect to any of Claims 6, 9 and 20, with or without regard to Zhang and Lyons. Accordingly, it is respectfully submitted that none of Claims 6, 9 and 20 are obvious under §103 in view of Hazelton and Amblard, considered with or without Zhang and Lyons. Notice to that effect is respectfully requested.

Dependent Claim 14

As noted above, independent Claim 9 stands rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of Hazelton, Lyons and Amblard. Claim 14 depends from independent Claim 9, and stands rejected under §103 based on a proposed combination of Hazelton, Lyons, and Zhang. However, if Amblard is required in the §103 rejection of independent Claim 9 in order to meet limitations in Claim 9, then Amblard would also be needed to meet those same limitations in the §103 rejection of Claim 14. In view of the fact that the §103 rejection of Claim 14 is based on only on Hazelton, Lyons and Zhang, and not Amblard, it

is respectfully submitted that the Examiner has failed to establish a prima facie case of obviousness under §103 with respect to Claim 14, and notice to that effect is respectfully requested.

Dependent Claims

Claims 2-5 and 7-8, Claims 10-14, Claims 16-19 and Claims 21-27 respectively depend from Claim 6, Claim 9, Claim 15 and Claim 20, and are also believed to be allowable over the art of record, for example for the same reasons discussed above in association with Claims 6, 9, 15 and 20, respectively.

Conclusion

Based on the foregoing, it is respectfully submitted that all of the pending claims are fully allowable, and favorable reconsideration of this application is therefore respectfully requested. If the Examiner believes that examination of the present application may be advanced in any way by a telephone conference, the Examiner is invited to telephone the undersigned attorney at 972-739-8647.

Appl. No. 10/802,087
Reply to Office Action of February 17, 2009

Attorney Docket No. 2003-1435 / 24061.911
Customer No. 42717

Although Applicants believe that no additional fees are due, the Commissioner is hereby authorized to charge any fees required by this paper, or to credit any overpayment, to Deposit Account No. 08-1394 of Haynes and Boone, LLP.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "T. Murray Smith", with a stylized flourish at the end.

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Enclosures: None

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